WORLD WEEK

THE NEWS MAGAZINE FOR STUDENTS

LED 7th INFANTRY ON KWAJALEIN IS.

Photo by Hod Lewis, Red Cross Correspondent

This grizzled veteran of World War I, Major General Charles H. Corlett, is commander of the 7th Infantry Division that took Kwajalein Island after a 6-day battle, Feb. 1-6. Dagger on the General's sleeve is Rangers' insigne. His cap is the wool helmet-liner which is worn under the helmet. This informality of dress is typical in combat areas.

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—Feeding a hungry world

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☆ ☆

TEACHERS EDITION

Map copyright, 1944, by Field Publications

FINLAND, land of woods and water, is completely surrounded by the Soviet Union, Norway, Sweden, and two great arms of the Baltic Sea. Around Petsamo are rich nickel mines.

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velopment of Middle East oil. "If we are going into this deal to assure our postwar oil supply," said Representative John Coffee (Democrat of Washington) "we should have insisted upon a partnership with the companies, such as the British government has with its companies, so that we would have some say in their policies and some share in the profits we are protecting at the risk of war.

"How are we going to protect our investment of $150,000,000 unless we undertake to protect the pipeline and the oil?" he asked. "And yet the oil was useless to the companies without our protection. Surely a fairer deal than this could be worked out."

Representative Coffee also expressed the fear that the deal would give the American companies a chance to establish a cartel agreement, whereby oil production would be restricted to keep prices high. "If we were partners in the development company, as the British government is in the British companies," he explained, "we could see that there was no monopoly arrangements with other companies and that the oil was sold to all consumers at a fair price. . . ."

Cooperation with Britain

Aside from the PRC pipeline agreement, other Government activities in the Middle East oil fields involve far-reaching deals with Britain. British representatives have come to Washington to discuss plans for U. S.-British teamwork in developing these rich oil resources. Here is the present lineup of oil reserve ownership in the Middle East, plus information on what the PRC pipeline deal and proposed U. S.-British agreements would accomplish:

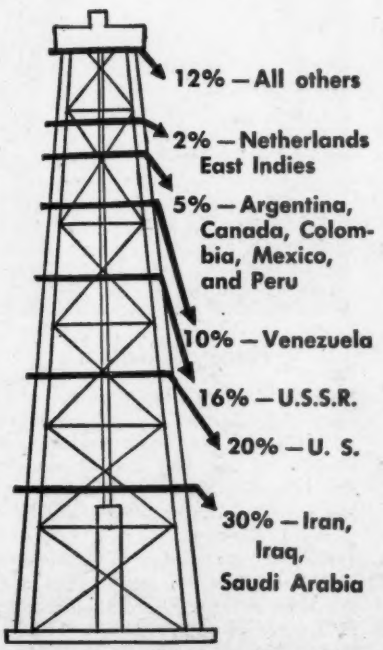
1. **Arabian-American Oil Company,** jointly owned by Standard Oil of California and the Texas Company. Its concession of 650,000 square miles was obtained from King Ibn Saud of Saudi Arabia. The oil reserves of Saudi Arabia are believed to be the largest in the world, and may reach a total of 30,000,000,000 barrels. At the prewar rate of consumption this alone would be enough oil to supply the world for 14 to 15 years. Standard Oil and Texas also own Bahrein Petroleum on the little island of Bahrein in the Persian Gulf. The Arabian-American Oil Company has been hampered by the lack of a pipe line to the Mediterranean.

2. **Kuwait Oil Company Ltd.,** jointly owned by the Gulf Oil Company and the Anglo-Iranian Oil Company, which is controlled by the British government. Kuwait, which is about the size of Long Island, has two oil fields which are said to compare favorably with the East Texas field, long a leader in oil production. There has, however, been no production in Kuwait because Gulf's deal with Anglo-Iranian will not permit it to sell oil to customers of the British company. In addition, Kuwait Oil Company lacks a Mediterranean outlet and its Persian Gulf outlet is too far from other oil markets.

Recent moves by the American Government will keep American companies in Saudi Arabia and Kuwait. First, the Government has asked Britain to change the agreement prohibiting Kuwait Oil Company from selling oil to Anglo-Iranian customers. Second, the PRC's Persian Gulf-Alexandria pipeline will give both Arabian-American and Kuwait Oil a Mediterranean outlet for their petroleum products. (See map of proposed pipeline.)

3. **Anglo-Iranian Oil Company Ltd.,** 100-per-cent British firm. To obtain oil for its navy the British government obtained a controlling interest in this company in 1914.

4. **Iraq Petroleum Company,** a firm that is British-controlled, while U. S. and French companies each have an interest in it. I.P.C. also holds oil concessions on the peninsula of Qatar (pronounced "Gutter") and in southeast Arabia. Oil in northern Iraq is carried to the Mediterranean by two pipelines. But the fields in southern Iraq have not been developed. The oil reserves in both Iraq and Iran are among the world's largest. Development work in Iran and northern Iraq is more advanced than in Arabia and the actual known reserves in these countries at present are greater than those in Arabia.


12% — All others
2% — Netherlands East Indies
5% — Argentina, Canada, Colombia, Mexico, and Peru
10% — Venezuela
16% — U.S.S.R.
20% — U. S.
30% — Iran, Iraq, Saudi Arabia

Percentage of world's known oil reserves held by nations

Under present plans the oil fields in Iran and Iraq will be developed and operated by the British. But the United States would lend the British money to build additional refineries and two pipelines to send Iran and Iraq oil to markets. A huge refinery would be built at Haifa, Palestine. One pipeline would run from the Iran fields to Abadan, at the top of the Persian Gulf, and from there to Haifa. The other line would parallel the present line from Kirkuk, Iraq, to Haifa. In addition, the U. S.-built Persian Gulf-Alexandria pipeline will carry oil from Qatar and southeastern Arabia, as well as from Saudi Arabia and Kuwait.

Russia, which has huge oil reserves in the Caucasus, is expected to join Britain and the United States in agreement on the postwar sale and distribution of oil. Such an agreement would control more than 95 per cent of the known oil resources of the world. And since oil is all-important in war as well as peace, Britain, the United States and Russia would be in a position to work for a prosperous and peaceful postwar world.

The other important oil-producing areas are the United States and the Caribbean area. War demands have cut U. S. oil reserves dangerously and Caribbean oil may be needed to meet our postwar needs. The oil production of Venezuela and Colombia, which is controlled by private British and American companies, will be as convenient to the United States as that in the Southwest. Refineries in the Netherlands West Indies and the U. S. East coast are sufficient to handle the entire output.

Experts believe that if U. S. supplies are kept at home for domestic use, and we also use Caribbean oil, our present reserves may last 20 to 30 years instead of less than 14 years. In addition, wartime advances in the refining and "cracking" of petroleum to produce powerful aviation fuels will help us stretch our postwar oil supply. We will get more fuel from a given amount of petroleum, and our high-grade gasoline will permit cars to get more miles per gallon of gasoline. We also have practically limitless resources for making substitute fuels. Gasoline can be made from natural gas, oil shale and low-grade coal. The hydrogenation process makes 107 pounds of gasoline from 100 pounds of coal.

Substitute fuels cost more but they do the job. The German army has operated about one-third of its war equipment with gasoline made from coal. If fuel prices rise as our oil reserves decline, and there is opposition to importing cheaper foreign gasoline, the production of substitute fuels will be increased.

VICTORY VIGNETTES

John H. Towers—U. S.

The Naval Air Force's champion, 59-year-old Vice Admiral John Henry Towers has been advanced from commander of air forces in the Pacific Fleet to deputy commander in chief of the Pacific Ocean area – second in command to Admiral Nimitz. A Georgian, Towers entered Georgia Institute of Technology, then was accepted at Annapolis where he became an early naval aviator. In 1912 he established a world record for sustained flight, in 1919 led a unit of flying boats on the world's first transatlantic flight. He commanded our aircraft carriers *Langley* and *Saratoga*. In 1939 he became chief of the Navy's Aeronautics Board.

Harold L. Ickes—U. S.

The man on whose shoulders rest the problems of U. S. oil supply is Petroleum Coordinator Harold Le Claire Ickes, Washington's most forceful and quarrelsome character. Born on a Pennsylvania farm, Ickes worked his way through the University of Chicago by teaching night school, then was a political reporter, taught at Hull House, and became a lawyer. A Progressive Republican, he campaigned for Theodore Roosevelt in 1912. In 1932 he backed Franklin Roosevelt, became F.D.R.'s Secretary of the Interior – in charge of everything from Indian Affairs to Reclamation. As PWA administrator he won the nickname "Honest Harold," spending five billions without any graft – on the Boulder and Grand Coulee Dams and low-cost housing. Ickes has fought utilities, big busjness and U. S. fascists.

John Moeller—Denmark

The leader of Danish resistance to Germany is short, stocky, handsome, white-haired John Christmas Moeller. Born in 1894, Moeller won his Doctor of Laws degree at the University of Copenhagen, became a Congress member for the Conservative party from 1920 to 1941. After the German invasion, Moeller was appointed Minister of Commerce. Forced out of the government by the Nazis, he toured Denmark, held mass meetings, urged Danes to unite against Nazism. He founded a skeleton underground – the Danish Liberation Council – and put out the first Danish patriot paper. He was forced to flee with his wife and son across the Channel in a small sailing vessel. The son joined the RAF, the father founded the Committee of Free Danes in Britain.

Leonid Govorov—Russia

Short, rotund General Leonid Govorov is middle-aged, has a Hitlerian moustache, is an artilleryman to the core. In 1940 his artillery opened a temporary corridor to besieged Leningrad. In the winter of 1941 he was one of the defenders of Moscow. That spring he took Mozhaisk. Within the last weeks Govorov's guns laid down the thunderous barrage that shattered the Germans' deep concrete fortifications around Leningrad, and freed this heroic city.

K. W. Gullers photo

Alexandra Kollontay

ACE AMBASSADRESS

ALEXANDRA KOLLONTAY is one of the most remarkable, yet little known figures in Europe. The first fully accredited woman diplomat of modern times, Mme. Kollontay is Russia's Ambassador to Sweden and is considered by diplomats one of the most brilliant members of the profession. Handsome even now at 71, fashionable, proficient in languages, and famed for her wit, she is a spirited, cultured hostess.

Her very survival is amazing. Born Alexandra Domontovich, daughter of a Tsarist general and half-Finnish mother, she married a cousin at 16, then left St. Petersburg to study at the University of Zurich, Switzerland. Returning to Russia, she organized women workers, was exiled in 1908 for criticizing czarist policies toward Finland. She led strikes in Paris, lectured in Italy, worked among coal miners in Belgium, joined the youth movement of Sweden, spoke on socialism in the U. S. Following Leon Trotsky, she returned to Russia after the fall of the czar in 1917, only to be jailed by the Kerensky government. When the Bolsheviks came to power, she was elected to the potent Central Committee, was Russia's first people's commissar of welfare, wrote most of the laws that regulate the status of women in the U.S.S.R.

From Minister and trade delegate to Norway in 1923, she moved to the Ministry to Mexico. Mexicans were won by her charm, simplicity, and habit of mingling with all classes. Because of snubs from the Mexican government, however, she left Mexico to become in 1930 Ambassador to Sweden, a country which had imprisoned her 15 years previously. Mme. Kollontay helped to arrange the Russo-Finnish peace of 1940, is now working for another Russo-Finnish understanding.

WHO'S WHO

International

Henry J. Kaiser

INDUSTRY'S TITAN

VENEZUELA, the country which supplies Britain with oil, needs help in developing its cement industry, its supplies of iron and natural gas. For this help the Venezuelan government has gone to U. S. industry's Titan – Henry J. Kaiser.

Born of poor parents in Canajoharie, New York, Kaiser stopped school at 11 to run errands for a local photographer. He learned photography so well that he bought out his employer. Then Henry went to Spokane as a salesman for paving contractors. The expanding west was ripe for construction men, and Henry became a street paver who, by putting rubber wheels on his wheelbarrows, surpassed all other pavers in speed. He built California highways, then laid a 300-mile road across Cuba's swamps.

Kaiser helped construct Boulder Dam, built Bonneville and Grand Coulee Dams. Although he had no cement mill, he supplied Shasta Dam with sand and gravel by developing quarries and by inventing a 10-mile conveyor belt. In December 1940 he promised to build 30 ships for Britain, although he did not know one end of a ship from another. Digging a shipyard in San Francisco Bay's swamps, he developed assembly-line construction of Liberty ships, became the world's biggest and fastest shipbuilder. Then, needing more steel for his yards, this "Jack of all industry" founded California's first steel mill. Now he thinks steel is passé, has branched into light metals.

Massive, aggressive, blunt and bald, Kaiser is a "can-do-man" who has no hobbies. He simply lives for his "empire," which now spreads from coast to coast.

INSIDE WASHINGTON

The O.W.I. Cleans House

By Creighton J. Hill
Our Washington Correspondent

WHEN President Roosevelt decided in favor of Elmer Davis in the OWI chief's administrative dispute with his aide Robert Sherwood, the Office of War Information was saved from collapse. That is exactly what would have happened to the organization which was set up in such high hope and which has floundered around and done so very badly in the task it started out to accomplish.

If the President had failed to stand by Mr. Davis, the latter would have been obliged to resign – and in his resignation the OWI would have lost what little prestige it had left after so much protracted wrangling. The specific dispute (and it was not a personal quarrel as so many Washington agency disputes are, the two men remaining friends throughout) was over Sherwood's refusal to discharge three men in the overseas setup (Barnes, Warburg and Johnson) whom Davis wanted to replace.

Sherwood, who is a personal friend of the President's and helps him in the preparation of some of his speeches and messages, took the issue straight to the White House. Mr. Roosevelt may have sympathized with Sherwood's desire to hold onto men whom he had chosen and with whom he had worked satisfactorily in overseas operations. But he saw that either Davis was to be boss of OWI or Davis should step aside.

President Likes Davis

His decision reveals that – like most Washington observers – the President has confidence in the genial straightforward and unpretentious ex-newspaperman who has taken over the thankless and difficult task of heading up a nation's war information and propaganda department in wartime.

Behind the immediate dispute, however, lay a larger issue. To date Mr. Roosevelt has scarcely given Mr. Davis the status which he should have in relation to the administration of the war machinery if OWI is to receive widespread public support. In Britain, Mr. Churchill has made the same job (held by Brendan Bracken as Minister of Information) a key government post. Mr. Roosevelt, on the other hand, failed to take Mr. Davis with him to Quebec last summer or to Cairo and Teheran more recently. OWI has been scooped by both the Russian and British publicity bureaus – through this failure of the White House to establish its official powers and status.

There has been recent talk, now allayed by the President's decision, that control of OWI would be placed in the Office of Censorship under Byron Price. This came about because OWI has been under fire of criticism from several quarters, most notably at the hands of Congress.

The basic trouble has been this: President Roosevelt failed to make OWI a tight, compact and important Government setup with its chief holding a post of Cabinet importance. Mr. Davis has never actually been sure of his own status and hence could not make the Washington headquarters of OWI the policy-making organization it should be in regard to domestic and overseas services.

Thus, when Davis felt that Sherwood's New York office (which is headquarters for the overseas section) was "running away with OWI" he decided to reorganize and put in men who would function in close harmony with his Washington control.

Those who resigned last month are Joseph Barnes, director of Atlantic overseas operations; James Warburg, head of OWI psychological warfare, and Edd Johnson, chief of the overseas editorial board. In their place Mr. Davis hired Edward W. Barrett (former associate editor of *Newsweek*) as executive director of the overseas branch, and Thurman L. Barnard (former vice president of N. W. Ayer & Sons, advertising agents) as his assistant.

Mr. Sherwood remains in his post as first assistant to Mr. Davis in overall charge of overseas activities.

Mr. Davis has felt that OWI's psychological warfare against the enemy must be strengthened. He believes that the time has come when civilian morale on the Axis home front can be undermined by well-directed propaganda.

One of the reasons why Congress has viewed OWI, first with suspicion and more recently with open hostility, is because the Republican and the anti-New Deal Democrats in both branches have believed it might be employed by the Administration to further Mr. Roosevelt's political ambitions.

Harris & Ewing

OWI Chief Elmer Davis being interviewed by the "gentlemen of the press."

This states the case rather baldly. It is not perhaps so blunt as that. But fundamentally, with an election campaign approaching, there is the feeling that any official government publicity agency – with propaganda as one of its official reasons for existence – is inextricably linked to the particular Administration which it represents.

How, for example, its critics ask, can OWI present Mr. Roosevelt unless it assumes that he is not only the President today but will continue in that office? Churchill and Stalin pose no such problems to their official ministries of information.

Hence, while OWI's troubles have for the present been smoothed over and Mr. Davis has at last been given the authority he long ago should have had, it is still an open question whether OWI can function with vigor and success and receive the cooperation of other arms of the government.

POSTWAR WORLD: UNIT 21

One of a series of 32 units on Postwar Problems and Planning published weekly throughout the school year.

Assuring world freedom from want

RECENT United Nations conferences, and others to be held soon, show that anti-Axis nations do not intend to wait until the war is over to begin the task of winning the peace.

In November, 1943, delegates of 44 nations signed an agreement establishing the United Nations Relief and Rehabilitation Administration (UNRRA). The delegates then met at Atlantic City to plan the greatest relief job in history. UNRRA will see that people in war-torn countries get food, clothing and shelter. But its main purpose is to "help these people to help themselves" by supplying them with machinery, seeds, and equipment needed to get their factories and farms back into production. Congress has recently moved to appropriate a substantial sum for these purposes.

UNRRA will cooperate closely with programs outlined by the Interim Food Commission. This Commission was appointed by the United Nations Conference on Foods and Agriculture, which met at Hot Springs, Virginia, in May, 1943. The Commission is expected to recommend the creation of a permanent world food authority to increase the efficiency of agriculture and to help assure freedom from want throughout the world.

A chart in the February 28 issue indicated the type of world economic structure that may be established by the United Nations when the war ends. At the top would be an over-all World Authority, with a world police force to control aggressors and prevent war. Next, would be a world economic authority. From this authority would come a variety of world-wide organizations to assure freedom from want for all nations. Among them would be a world food (or agriculture) authority.

A Nutrition "Yardstick"

The problem to be handled by a world food authority will be better understood if we review the work of the United Nations Conference on Food and Agriculture. Seeking to provide a nutrition "yardstick" to measure diets throughout the world, the conference worked out an ideal diet for the average person. Here is the bill of fare for one person, for one day:

Ten ounces of grain products, such as bread and cereals.
Slightly more than one pint of milk.
A half pound of starch-rich vegetables—potatoes or yams.
Slightly more than one ounce of leguminous vegetables—peas or beans.
Four ounces of such vitamin-rich products as citrus fruits and tomatoes.
Four ounces of leafy green and yellow vegetables.
Six ounces of meat, fish, or poultry.
Three ounces of butter and other fats.
Two ounces of sugar.
Three eggs every two days.

Look at the chart on next page—"How people get their energy supply." It shows that Americans get only 30 to 40 per cent of their energy from such cheap foods as cereals and potatoes. But the percentage is over 70 for most of Asia and Africa. Using the conference "yardstick" for diets we can see that the heavy use of cereals and potatoes in most nations means a poor diet for at least three-fourths of the people of the world.

The World Is Hungry

Section I of the conference report declared that greater production was needed if the people of the world were to have a good diet. "In all countries."

The Range of Purchasing Power

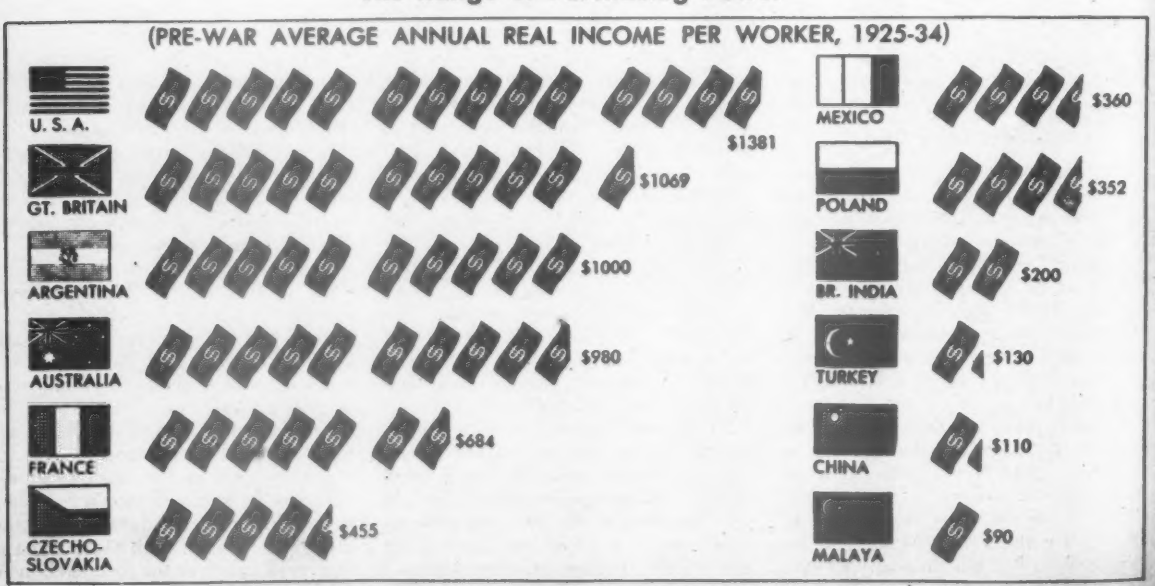


Chart by Pictograph Corporation from "After the War!" by Hiram Motherwell (Public Affairs Committee, Inc. pamphlet.)

the report stated, "the diet of large sections of the population does not attain the level needed for health. In no country has the conquest of hunger been fully attained. There has never been enough food in the world for the people of the world to eat. . . . Recent studies among workers in war industries (in the United States) show widespread inadequacies of diet, which impair their working efficiency. Yet the United States has been regarded as one of the best-fed nations in the world. . . ."

"Protective" Foods Needed

In Section II, the conference considered how agricultural production could be increased and adapted to yield the supplies most needed by consumers. Emphasis was put on increasing the production of "protective" foods – fruits, vegetables, milk – which are most necessary for good health. Section II also recommended measures for bringing new land areas into production and increasing the productivity of soil in Africa, Asia and parts of South and Central America.

Section III of the conference pointed out that consumers would be unable to buy the food they needed, and producers would not be assured of reasonable profits, unless strong efforts were made to wipe out unemployment and raise living standards in all countries.

"Some of the need for food now arises from the fact that the surpluses of some nations are frequently not available to supply others . . ." wrote Elizabeth Hoyt in the Public Affairs pamphlet, *Freedom from Want: A World Goal.* "We ploughed cotton under when desperately poor Chinese were tying newspapers around their bare bodies to keep out the cold. To be sure, international action is not necessary to stop such practices, but a closer working program among all nations would largely solve such 'surplus' problems."

Our crop limitation program was used during the depression years of 1933-35, when the Agricultural Adjustment Administration sought to get rid of price-lowering surpluses of wheat, cotton and other products. Under a new world food authority, a world-wide Agricultural Adjustment and Marketing Administration could be established. Instead of putting limits on production, it would aim to increase the production of many "protective" foods, and shift the farmers of some nations from the growing of cereals.

Shifting Types of Food Production

For instance, American farmers might be asked to increase the production of meat and milk. Southern farmers might be asked to reduce cotton acreage and raise dairy cows and vegetables, while wheat farmers might provide more feed for livestock. The aim, according to experts, is to "make sure that grain won't be rotting in North American warehouses, or acres left barren, while whole Chinese provinces are starving. . . ."

Farmers in Germany, France, Belgium and Sweden might be urged by the world food authority to grow less wheat, rye, sugar and potatoes, and instead produce more vegetables, fruit, hogs and chickens. European countries could get their grains from the more efficient, large-scale growers in the United States, Canada, Australia and Argentina.

The farmers in Spain, Portugal, the Balkans, and Italy might be given loans so that they could switch from grain production to dairying, and their output of wine, olive oil and fruits would be increased. All these farmers would be encouraged to follow the example of Denmark which, years before the war, developed the highest production of dairy products and pork per farm of any nation in the world. In China and India a program of building up local industries might be undertaken to provide a market for increased food production by Chinese and Indian farmers.

This long-range agricultural program must wait until the immediate postwar job of conquering hunger has been completed. The conference recognized that until the war-torn nations have been rebuilt to some extent the other nations must see that they get large amounts of food. This means that the United States and other fortunate nations must for a time share their supplies with less fortunate countries. UNRRA already is making plans to carry out this program.

How People Get Their Energy Supply

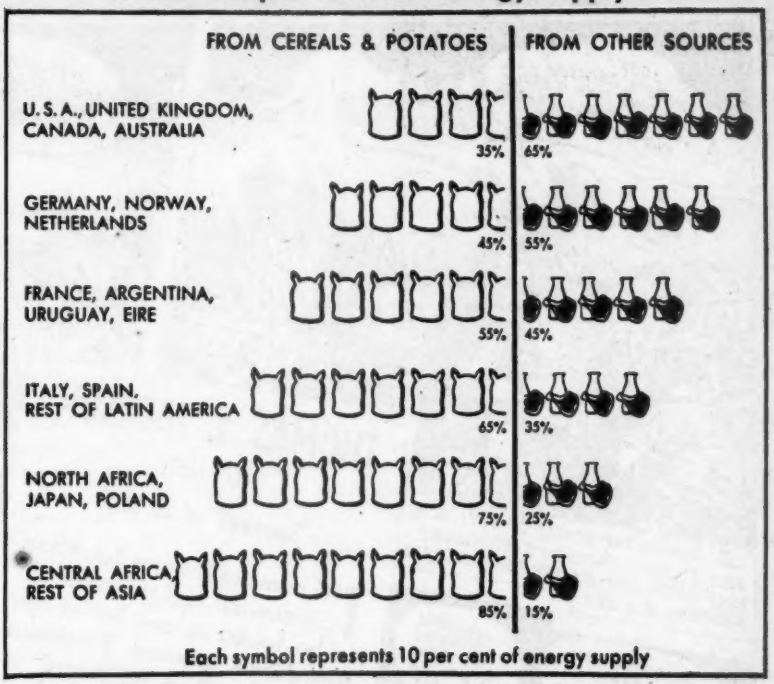


Chart by Pictograph Corporation from "Freedom from Want: A World Goal," by Elizabeth E. Hoyt (Public Affairs Committee, Inc. pamphlet.)

The Problem of Payment

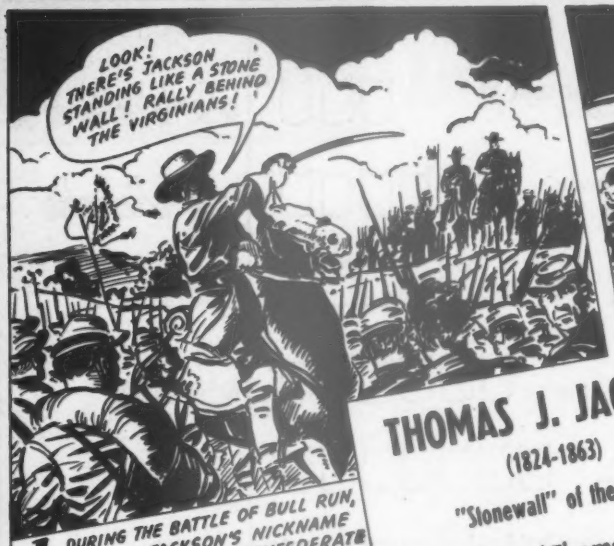
What is more important, food must go first to nations that need it most, and not to nations having the greatest ability to pay for it. Some of the governments-in-exile (Belgium, for example) have enough money to buy necessary supplies of food to feed their people when the Nazis are driven out. But others (such as Greece or Poland) will lack the necessary cash though their need for food will be just as great. This is why it is important for UNRRA to take charge of food supplies available for relief and see that they are divided fairly among needy people in all countries.

UNRRA also will seek to keep producers of foods from taking advantage of the heavy postwar demand by increasing prices. If and when a world food authority is organized the problem of balancing the supply and demand of food, so that prices remain reasonable at all times, will be studied on a world-wide basis.

Summing up the work of the conference, President Roosevelt declared:

"A sound world agricultural program will depend upon political security, while that security will in turn be greatly strengthened if each country can be assured of the food it needs. Freedom from want and freedom from fear go hand in hand. . . ."

THEY FOUGHT FOR FREEDOM



1 DURING THE BATTLE OF BULL RUN, JULY 21, 1861, JACKSON'S NICKNAME WAS GIVEN HIM BY THE CONFEDERATE GENERAL B.E. BEE.

2 ON A MARCH JACKSON GAVE HIS MEN RATIONS OF SUGAR AND ORDERED A SHORT REST EVERY HOUR. HIS FAST-MOVING INFANTRY BECAME KNOWN AS JACKSON'S "FOOT CAVALRY."

THOMAS J. JACKSON

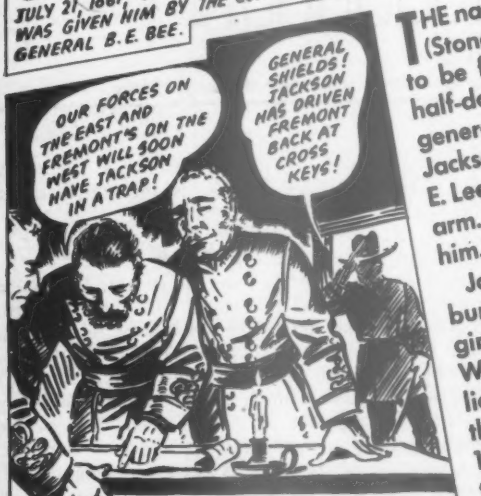
(1824-1863)

"Stonewall" of the South

THE name of Thomas Jonathan (Stonewall) Jackson is certain to be found in any list of the half-dozen greatest American generals. When he heard of Jackson's death, General Robert E. Lee said: "I have lost my right arm. I know not how to replace him."

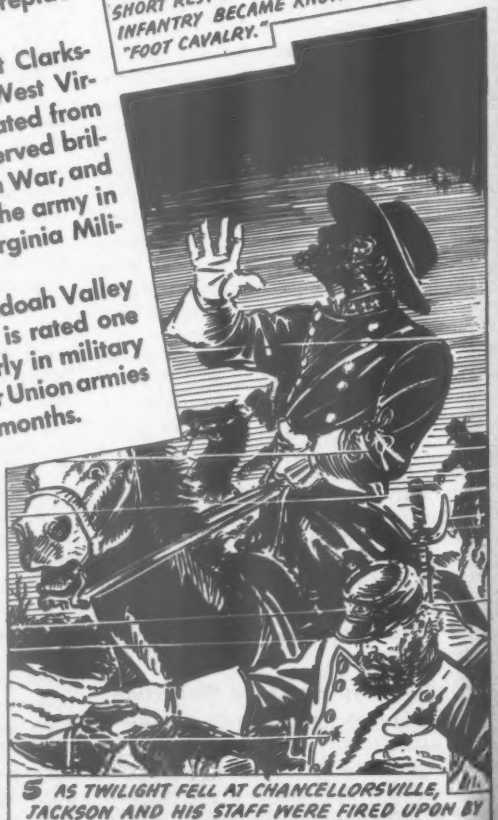
Jackson was born at Clarksburg, Virginia (now West Virginia). He was graduated from West Point in 1846, served brilliantly in the Mexican War, and then resigned from the army in 1852 to teach at Virginia Military Institute.

Jackson's Shenandoah Valley campaign in 1862 is rated one of the most masterly in military history. It kept four Union armies busy for several months.


OUR FORCES ON THE EAST AND FREMONT'S ON THE WEST WILL SOON HAVE JACKSON IN A TRAP!
GENERAL SHIELDS! JACKSON HAS DRIVEN FREMONT BACK AT CROSS KEYS!

3 IN THE SHENANDOAH CAMPAIGN, MAY 8, TO JUNE 9, 1862, JACKSON'S 16,000 MEN MARCHED 400 MILES AND FOUGHT AND WON FIVE BATTLES AGAINST 62,000 UNION TROOPS.

4 DURING THE BATTLE OF CHANCELLORSVILLE IN 1863 JACKSON MADE ANOTHER OF HIS DARING MARCHES AROUND THE UNION ARMY AND STRUCK IT FROM THE REAR.



5 AS TWILIGHT FELL AT CHANCELLORSVILLE, JACKSON AND HIS STAFF WERE FIRED UPON BY CONFEDERATE OUTPOSTS. JACKSON WAS SEVERELY WOUNDED AND DIED ON MAY 10, 1863.

TEXT BY FRANK LATHAM, DRAWING BY FRANK RONAN

WORLD WEEK teachers edition

Classroom Activities

Finland: Pawn of Powerful Neighbors (p. 5)

The first Finns were sea-raiders who harried the Swedish coast so repeatedly that the Swedish king Eric IX decided to tame and civilize these brave and hardy neighbors. The Finns accepted Christianity in 1249. From that time to this, Finland has been the "cockpit of northern Europe," where Russia, Sweden, and Germany battled for control.

The Swedes treated the Finns well during the time they held the upper hand, even giving the Finns whatever civil rights, education, and culture they themselves enjoyed. Peter the Great later took Finland, and gave the Finns the status of Russians, not conquered enemies. Not until the end of the 19th century, when Czar Nicholas II decided to Russify all the people within his empire, were the Finns persecuted. In November, 1905, the Finns organized a national strike. The Russians yielded and restored the former liberties of the Finns. But with the approach of World War I, the Czar again tightened his hold on Finland. The bad feeling generated in those days led to closer friendship with Germany which finally terminated in the ill-fated present alliance.

After Finland gained her independence, education was widespread and thorough. It was modeled closely upon the German system, and so was the system of nation-wide military training. Each man served in the army from the age of 21 for at least a year. But all males were liable for military service and further training from the age of 17 to 52. Marshal Mannerheim's most promising young officers were sent to Germany for training in military science.

Cultural Research:

Obtain a copy of *The Kalevala*, the Finnish national epic poem, and read portions of it aloud to the class. Note that this story of the early heroes resembles *Hiawatha* very closely in form and structure. Remind them that several notable composers have recently emerged in Finland. If possible play for the class on the school phonograph one of Sibelius' symphonies, or *Finlandia*, the national anthem. Point out that the Finns have migrated to the flat, cool, Great Lakes country of the United States. If there are Finns in your community ask the class to discuss with them their method of agriculture, their home life, and their community life in Finland.

Questions for Discussion:

1. Where do historians believe the Finns originated?
2. What were the chief characteristics of the early Finns? Do you think they are the same kind of people today?
3. Why have the Finns been the victims of the long struggle between Russia and Sweden? How were they treated by both conquering nations?
4. Trace the events by which Finland became an independent state.
5. Why have the Finns made friends with the Germans?
6. What influence did Russia have on Finland after World War I?

Finland—Unhappy Axis Ally (p. 3)

Study the map on page 2 in connection with this and the foregoing article by Dr. Langsam.

Owing to the success of the Soviet drive into Estonia the Russians are now in possession of most of the south shore of the Gulf of Finland. This brings Helsinki within easy bomber range and Red flyers are busy now softening up the Finnish capital. This reinforces Secretary Hull's note urging the Finns to surrender.

Discuss with the class the reasons why the Finns considered they could win more advantage by joining the Germans than by remaining neutral or joining the Russians. How much of their reasoning was based on emotion, how much on fact? When Germany invaded Russia world opinion believed that the Russian armies were of a quality greatly inferior to the German. But the Finns had learned what the Russians could do when they really went to work. Probably more than any other people, they should have known that the Russian phase of the war would be long and hard. Yet they vented their desire for revenge to their own cost.

Questions for Discussion:

1. Why were the Finns always highly respected in the United States?
2. What was the attitude of this country toward the Russo-Finnish war?
3. What had the Russians asked of the Finns in 1939 before the war?
4. What were the Russian terms after the war?
5. Why did the Finns decide to ally themselves with the Germans?
6. Why will the Germans resist any attempt to make peace on Finland's part?
7. Why may the peace terms be more severe if Finland waits?
8. What would the Allies gain by Finland's surrender?

The O.W.I. Cleans House (p. 9)

Recently two journalists from Washington were assigned to investigate the Army's overseas news service. They were told the news was politically biased in favor of the Administration. They examined a million words of print and came to the conclusion that not only is there no pro-Roosevelt propaganda in all those words, but that the news was so colorless as to be intolerably dull.

Congressional suspicion has kept the OWI under scrutiny from its beginning, as Mr. Hill points out. Dr. Henry Seidel Canby, editor of the non-political *Saturday Review of Literature* had this to say in defense of the organization: "The recent difficulties of the OWI in getting support from Congress seem to be due to four main causes.

"The first may be called errors in judgment and in carrying on its highly important job. These have not been . . . as numerous as the mistakes of some other government agencies. They have

COMING NEXT WEEK

(March 13-18 Issue)

- Canned Goods and Victory Gardens: Supplementing the Fruit and Vegetable Shortage
- France Faces a New Life: Republican Government Will Take Over After Invasion
- Inside Washington: The Supreme Court, by Creighton J. Hill
- Map Study of Truk and Caroline Islands
- Postwar World: Unit 22. National Planning for Jobs and Security
- World History Behind the News: The Third French Republic, by Walter C. Langsam
- Know Your World: Belgium
- They Fought for Freedom: Clara Barton (Historical picture page)

been promptly admitted and corrected by Elmer Davis. . . .

"The second is the political line taken by the Republican minority and dissident Democrats. This line is to attack all administration agencies whenever an opportunity occurs.

"For a third cause, the OWI unfortunately has to deal in opinion as well as in fact. . . . (It) is definitely not isolationist, but there are plenty of the other school still unwilling to argue since events have discredited them, but eager to bite and buck.

"The fourth cause is a profound misunderstanding of the nature and importance of propaganda in this war."

Hold an informal class debate on the question: RESOLVED: that there should be more propaganda directed to the enemy and occupied countries of Europe.

Questions for Discussion:

1. What is the difference between the British Ministry of Information and our OWI?
2. Why did Elmer Davis want to discharge the three men under Sherwood's control?
3. Why has Congress assailed the OWI?
4. Do you think that a government agency like the OWI interferes with the freedom of the press?

Casualty (p. 18)

One of the great medical advances of this war is that the number of amputations made necessary by gas gangrene has diminished sharply. In Civil War days, and earlier, a wound in the abdomen, a long jagged flesh wound on a limb, or even a compound fracture generally sealed a soldier's death warrant unless an amputation could be performed quickly. Even an amputation was by no means a guaranty of immunity against infection, however. Today, amputations are not considered necessary unless a limb has been too badly shattered for repair.

Questions for Discussion:

1. What two drugs are generally administered promptly to wounded men as first aid?
2. How does the body act to halt infection from breaks in the skin?
3. What is gas gangrene and what causes it?
4. What types of infection are caused by bullet wounds?
5. How are penicillin and sulfa powder used on wounded men?
6. What are the latest means of treating gas gangrene?

Electronics Fights the War (p. 14)

After the war, the uses of electronics are expected to develop rapidly. One of the best known uses will probably be in television. Industry, too, will be affected. Some jobs will be speeded up enormously. Instead of welding or riveting metal parts together, an electronic machine will "stitch" them together. The thinnest and most fragile aluminum parts can be joined in this way because it is possible to regulate electronic heat very delicately. Plywood can be glued and cured in stacks in a few minutes. Sorting and checking of factory products can be done with incredible speed and accuracy. Analysis and inspection can be improved by the use of electronic microscopes. Finally, farmers will be able to cure or process foods without loss by electronic treatment against bacteria.

Demonstration Project:

Ask members of the class who are studying science to give blackboard demonstrations with diagrams of the principles of electronics. Pass a clear electric light bulb around the class to observe the operation of the current from the filament to the plate. Ask someone to explain the operation of a grid and a vacuum tube in a radio. Point out to the class that thousands of men in the armed forces are learning the use of electronic devices in radio school and Signal Corps. Discuss some of the kinds of jobs these trained men might be able to fill in peace times.

Oil for War and Peace (p. 6)

According to most conservation authorities, our coal reserves of all kinds are sufficient to keep us supplied for at least a century to come. Since coal will produce gas and oil, our future domestic oil supply is dependent in part upon the creation of new machinery for making synthetic oil. The Rocky Mountain regions abound in a type of rock which is called oil-bearing shale. By an expensive and still undeveloped process the oil can be extracted from shale. Improved methods of geophysics will doubtless also be developed for locating new and deeper oil deposits. Probably the yield from such sources will not equal the capacity of the big fields of the past, and the process of getting the oil above ground will be more expensive.

All these facts brought out in the article mean less abundant and more expensive oil after the war. They may even mean that the government will have to subsidize the development of a new oil industry. But it is only natural that the private oil industry should object to a program of government ownership and control.

Assign to some of the advanced members of the class the job of finding out and reporting on how a cartel works. Some of the following sources would be useful:

"No Peace with I. G. Farben: cartel system with the U. S. a party," *Fortune*, September, 1942, p. 104.

Arnold, T. W. "Abuse of Patents," *Atlantic Monthly*, July, 1942, p. 170.

Kronstein, H. "European Cartels," *Commonweal*, June 4, 1943, p. 170.

Arnold. T. W. "Cartels Threaten Democracy," *Science Digest*, March, 1944, p. 79.

Questions for Discussion:

1. What is the Petroleum Reserves Corporation? When was it established and why?
2. Why has the war used up such an abnormal amount of the U. S. oil supply?
3. Where will the PRC operate? How may it help to build up a government reserve store of petroleum?
4. What groups are objecting to the PRC? What are their reasons?
5. How does the PRC plan depend upon cooperation with the British?
6. What is the Arabian-American Oil Company and how does it operate?
7. Name the three other most important oil companies in the Near East and tell where and how they operate.
8. Where are other important oil reserves?

Point out on the map the location of each of the important oil supplies named in the chart.

Know Your World (p. 13)

Point out on the map the location of Normandy, of Dieppe, Rouen, the Seine, Le Havre. What is the relation of this region to Picardy, the subject of last week's article?

Questions for Discussion:

1. How was the Dieppe raid conducted? Describe all the obstacles the Commandos had to face, and what the raid proved.
2. Why do some people think the invasion may come at some point along the Normandy Coast?
3. Who were the first Normans? Who were the Norman kings of England?
4. Describe the topography of Normandy.

Air Week (p. 16)

Questions for Discussion:

1. What is a jet plane like to a pilot?
2. What is the outstanding difference between a Zero and its successor?
3. What makes the Zeros good fighting planes?

Key to "Know Your World Week"

I. *Who's Who:* 4, 1, 5, 2, 3.

II. *Oil for War and Peace:* 1-c; 2-a; 3-a; 4-b; 5-a.

III. *Assuring Freedom from Want:* 1-T; 2-F; 3-T; 4-F; 5-T.

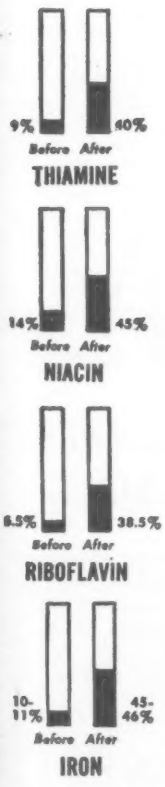
IV. *Finland — Unhappy Axis Ally:* 1-Helsinki; 2-Mannerheim; 3-sixth; 4-three; 5-Hango; 6-nickel, molybdenum; 7-food.

#12

This is part of a series on matters of professional, educational and public interest, primarily related to nutrition and the scientific approach to the food problem, and giving the background of the products of General Mills. These messages are being disseminated through a number of professional and specialized publications... in the hope of providing material useful for the readers.

What is the national nutritional significance of flour enrichment and cereal restoration?

"The increase in the vitamin and mineral requirements of enriched flour . . . will be of far-reaching benefit to the people of the United States." CLAUDE R. WICKARD, *Sec'y. of Agriculture*



VIEWED from the standpoint of the national economy as a whole, foods made from our common grains translate nature's bounty into human nutrients more economically than any other major class of foodstuffs. More than a third of the world's food energy and protein requirements are supplied by cereal grains. In this country, the percentage is slightly less.

Prior to the nutritional discoveries of recent years, and in response to popular demand for more appealing and appetizing forms of cereal foods, many of the principal forms in which this country's cereal grains have been consumed have been those in which, in consequence of the necessary processing, certain of the vitamin and mineral virtues of the original grain have been lost. The vitamin and mineral contribution of such foods has, therefore, not matched their contribution in food energy and protein.

For many years research has wrestled with this problem. The stimulus of the defense program and the discovery—and availability—of certain vitamins in pure form has made possible the correction, in large measure, of this situation. And today, enriched flour and restored cereals are available in every part of the country.

The bars at the left are interesting in this connection. They show the percentage of three B vitamins and iron contributed to the average normal diet* by flour and cereals in the days before flour enrichment and cereal restoration and now.

These bars demonstrate that, thanks to enrichment and restoration, the contribution of flour and other cereal foods in these essential B vitamins and iron is greater than their contribution of food energy and protein.

These are the facts behind the enthusiasm of nutrition authorities for the enrichment program.

Studies have indicated that large numbers of persons do not get adequate quantities of the "protective" B vitamins and iron which enriched flour and restored cereals now supply. The availability of these nutrients in such common foods strikes an effective blow in the interests of better national nutrition, and is accordingly important both for the war effort and the future health of the nation.

*Figures based on 2800 calorie prewar diet . . . assuming our cereal consumption consisted wholly of enriched flour and bread and whole-grain or restored cereals. Current enrichment levels used, and all data adjusted for average losses in cooking.

General Mills, Inc.

Minneapolis, Minn.

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OFF THE PRESS

"Friend" is a warm, comfortable, happy word. Dr. Rachel Davis-Dubois chose well to use it in both the subtitle and the dedication of her book, *Get Together Americans; Friendly approaches to racial and cultural conflicts through Neighborhood-Home Festival.* She believes that people who talk and sing and eat together in a holiday mood will lose their prejudices and "separateness." She is working against tensions due to competition, exclusiveness, overwork, suspicion and insecurity. Antagonism between groups disappears when they share memories of simple, homely activities. Individual release and group tolerance come naturally from the kind of neighborhood mingling in which Miss Dubois has pioneered in communities all over the country. She tells how to work in classrooms and communities. (Harper, $1.75.)

* * *

Basic Physics for Pilots and Flight Crews, by E. J. Knapp, Professor of Mathematics and Physics, Texas College of Mines. A basic text planned to meet the requirements of primary flight training or air cadet training and to prepare students for Meteorology, Theory of Flight, and Engine Operation. (Prentice-Hall, $1.25.)

* * *

The quarterly journal *Scripta Mathematica* (186th St. and Amsterdam Ave., New York City) has available for free distribution to schools on request the following mathematical and scientific materials: 1. Portrait of Pythagoras and biography of him by Professor C. J. Keyser. 2. Symposium on the life and work of Rene Descartes. 3. A large portrait of Sir Isaac Newton (in connection with the tercentenary celebration of his birth). 4. A portrait of Copernicus (published on the quadricentennial of his death).

"New Yorker" Discontinues "Reader's Digest" Rights

The New Yorker magazine has refused to renew an agreement with *The Reader's Digest* permitting the reprinting of *The New Yorker* text or pictures because *The New Yorker* says, *The Reader's Digest* has ceased to be essentially a reprint magazine and is "beginning to generate a considerable fraction of the contents of American magazines."

The text of *The New Yorker* letter follows:

"*To Our Contributors:*

"*The New Yorker* has not renewed its agreement with *The Reader's Digest* this year and has decided that no permission will be given *The Digest* to reprint our text or pictures. Since you, as a contributor, have a stake in this we presume you will want to know our reasons. They are roughly as follows:

"*The Digest* started out as a reprint magazine but grew into something quite different. Nowadays a large proportion of its contents is frankly original with *The Digest* and not presented as reprint material; and, of the stuff that is presented as reprint material, much actually originates in the office of *The Digest* and then gets farmed out to some other magazine for first publication.

"The effect of this (apart from spreading a lot of money around) is that *The Digest* is beginning to generate a considerable fraction of the contents of American magazines. This gives us the creeps, as does any centralization of Genius. The fact seems to be that some publications are already as good as subsidized by *The Digest.* Our feeling is that if *The Digest* wants to publish a magazine of original material, it should do so in a direct manner.

"We believe it should not operate through other publications to keep alive the reprint myth. We don't want to be in the position of receiving for consideration a manuscript that has already been bought and paid for by some one else, for we regard such a situation as unhealthy. We were willing to be digested, but we are not willing to be first supplied, then digested.

"*The New Yorker,* furthermore, has never been particularly impressed with *The Digest's* capsule theory of life and its assumption that any piece of writing can be improved by extracting every seventh word, like a tooth. We have occasionally been embarrassed to see our stuff after it has undergone alterations at Pleasantville. (Pleasantville, N. Y., where *The Digest* is published.)

"Mostly, however, we object to *The Digest's* indirect creative function, which is a threat to the free flow of ideas and to the independent spirit. We trust that you will see our point and approve.

THE EDITORS"

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NORMANDY

Home of the Conquerors

KNOW YOUR WORLD
PLACES IN THE NEWS

KNIFING across the English Channel, his Majesty's destroyers and transports led the way through minefields cleared by trawlers. In a mile-long string of invasion barges thousands of men fingered their daggers and loaded their Sten guns. Canadian and Free French Commandos, accompanied by U. S. Rangers, were to attack beaches east and west of Dieppe, to distract the enemy while the main force of Canadians landed directly below the chalk cliffs of Dieppe. The invasion fleet's engines stopped. It was 4 a.m., August 19, 1942, the zero hour of the Allies' first attack upon western Europe. Canadian Major General J. H. Roberts gave the signal "Go ahead!"

The Commandos on the eastern flank had bad luck, were intercepted by German E boats whose barking guns warned the coastal batteries. The Commandos had to retreat, cut to pieces by crisscrossed machine-guns and anti-aircraft fire turned earthward. Under an Allied air umbrella, British ships fired at boarded waterfront hotels, turned into German fortresses. The main invasion force surprised the Germans, ran down the barges' ramps, dashed 50 yards over the Dieppe beach to the base of a parapet used in peacetime as a bathers' promenade. The Canadians cut through loop after loop of barbed wire, climbed the cliffs, fought with bloodied bayonets through the sniper-filled streets of Dieppe. They captured the casino, seized a German gun battery and radio station.

Rehearsal for Invasion

Then they blew up their tanks and withdrew, under a hail of German bombs, and left behind the wreckage of flaming Dieppe.

So ended the raid on Dieppe in 1942. It cost the Canadian army heavy losses, but proved that the fortified coast of France can be breached. Dieppe was the rehearsal for this year's invasion of western Europe.

The coming invasion may be aimed at Normandy, up whoses chalk cliffs invaders have clambered since prehistoric times, when men of the Bronze Age arrived and set forth again to England. The Druids worshipped throughout Normandy, leaving their stone dolmens behind. Some Gallic tribes settled in the fertile valleys, giving their names to towns: the Lexovii to Lisieux, the Bajocasses to Bayeux. A lieutenant of Caesar's defeated the Gauls at Evreux, where today stand the ruins of a Roman amphitheater, baths and aqueduct. Then came the short, dark Bretons, building magnificent abbeys in the hills of Normandy. In 911 strange high-prowed ships brought new invaders – tall, blonde Northmen from Scandinavia. At first the Normans (soft for Northmen) burned villages, ravaged churches and terrorized the countryside as far as Paris. But the Norman king, Rollo, was baptized by the king of Neustria (northern France at that time), and the barbarian seafarers turned into lawmaking farmers. From Scandinavia the Normans brought two beliefs: that every man should own his own home, and that every man had the right of trial by jury. Throughout French medieval days, when all other farmers were serfs to landlords, the Normans kept their principle of private property.

The Conquerors

Huge of stature, the mail-coated Normans were famed soldiers who made their rulers, William the Conqueror and Henry Plantagenet, kings of England. Daring sailors, they voyaged to Sumatra, Madagascar and America, conquered Sicily and northern Italy. Independent, they fought the early kings of France, and during the French Revolution were Girondists who opposed the leaders in Paris. Talented, they gave the world the historian Guizot, the tragedian Corneille, the novelist Flaubert, the poet Malherbe, and the landscape painters Poussin and Millet. The Normans' vocabulary added place names that mark present-day Normandy; beuf (Norman for house) as in Elbeuf, fleur (fjord) as in Honfleur, bec (stream) as in Caudebec, diep (deep port) as in Dieppe.

Repeated wars – the Hundred Years' War, the Catholic wars against the Huguenots – left the Norman wily, tenacious and pessimistic. A Norman never says "We've had a wonderful apple season." He puts it: "For a bad apple year it's not too bad!"

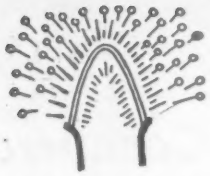
Because Normandy was invaded so much, the farmers as a rule still live in wall-enclosed houses and barns. The "farm" is in the village for protection, and the farmer walks miles out to his fields every day. The Norman never drinks water—only cider.

Except for the west coast, Normandy is covered with rich loam 18 inches thick, is watered by trout-filled streams, and is moistened by breezes from the Gulf Stream that make it cooler

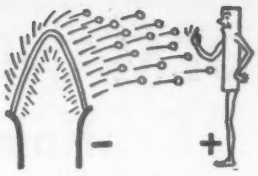
Map copyright 1944, by Field Publications

in summer and warmer in winter than Paris. France's finest apple orchards cover Normandy right up to the water's edge. Myrtle climbs over the chalk cliffs, palm trees and camelias dot the seaside resort towns. In the bays of the streams the tide overflows, and at the sandy mouth of the Seine a tidal wave – the *mascaret* – sweeps over the river bank. These tides leave behind water-soaked fields on which graze sheep. Around Rouen are great cornfields, and around Caen pasturage for the famed Normandy horses.

Fertile Normandy has three parts – the Seine region, the Orne region and the west coast, each being marked by different architecture. Because there was no building stone along the Seine, Normans here built their houses of wood and constructed towering steeples. Since they had much sandstone, they decorated with exquisite carvings the cathedrals at Rouen, Evreux, and Lisieux. In Rouen, Joan of Arc was burned at the stake. Seventy miles from Paris, this industrial cotton center berths river freighters that come up from the transatlantic port of Le Havre. In the Orne river region there is hard stone, so the buildings are simpler stone edifices, as the famed Abbaye aux Hommes built in Caen by William the Conqueror. Along the wild, stormy west coast, where 300-feet-high cliffs jut into treacherous waters, the buildings are of granite, as in the industrial port of Cherbourg. Carved out of a solid granite island stands sublime Mont St. Michel.



When a tungsten filament is heated by electricity in a vacuum, electrons boil out of it.



A positive voltage beckons to electrons and attracts them to the plate.

Electronics Fights the War

WHEN American forces landed in North Africa in 1942, the Vichy French battleship *Jean Bart* began hurling shells at our fleet. American warships 26 miles away put the *Jean Bart* out of action in two shattering broadsides.

During a night action in the Solomons campaign one of our modern battleships was able to locate and hit on the first salvo a Japanese battleship eight miles away. The Japanese ship was never actually seen by our men until after she had been hit and was afire.

The amazing accuracy of our gunfire was made possible by the electronic tube. Here is battle proof that our scientists have enlisted electronics in the war. And in two war years the electronics industry has skyrocketed to a four billion dollar business – greater than the prewar automobile industry.

What is electronics? It is "the science of putting the electron to work." What is the electron? It is called "the building block" of the universe.

Meet the Electron

Physicists once thought the atom was the smallest particle of matter. Now they know that the atom is not a solid bit of matter, but rather, that it resembles a miniature solar system. A minute "sun" is at the center of the atom, and minute "planets" revolve around the sun. The center of the atom (nucleus) is a plus, or positive charge of electricity. The revolving planets are electrons, having minus or negative charges of electricity.

Since electrons are part of atoms and atoms make up all matter, electrons are everywhere, a part of everything – your desk at school, your pencil, the food you eat, the paper on which these words are printed. Electrons are the smallest known particles in existence. Scientists believe that if 25 trillion (25,000,000,000,000) electrons were placed side by side they would make a row one inch long. Six million trillion electrons flow each second through the filament of a 100-watt lamp to keep it burning.

The small but mighty electron can be controlled by scientists because of a law of the electrical world which says that like charges of electricity repel each other and unlike charges attract. We have all observed the behavior of two magnets. If we bring the south pole of a magnet near the north pole of another magnet the two magnets are drawn to each other. If we bring the two north poles of the magnets toward each other, they are repelled. So if we free an electron from its atom and set up a positively charged attraction nearby, the negative electron will travel straight to it at almost the speed of light – 186,000 miles a second.

The "Edison Effect"

As far back as 1883 Thomas Edison discovered the secret which is the basis of electronics today. Edison found out how to free the electron from its atom and still control it. He was experimenting with his invention, the electric light bulb. He found that when he sealed a metal plate (or anode) near the filament (or cathode) of the lamp, current flowed from the filament to the plate when the light was turned on. Current was flowing across empty space! Edison patented his discovery, and it has since been known as the "Edison effect." But the patent ran out before Edison attempted to develop it further.

Twenty-one years later, Professor J. A. Fleming developed this "Edison effect" into a vacuum (airless) tube which was called the Fleming Valve. What happens in this electronic tube or valve? When the cathode filament is heated by an electric current the negatively-charged electrons are boiled out and then attracted to the plus-charged anode. Since a stream of electrons, either in a wire or empty space, is an electric current, this is a way to create and control a current of electricity.

Scientists got a firmer grip on the fast-stepping electron when Lee De Forest invented the grid in 1907. This grid, hooked to a separate electric current, was inserted between the cathode filament and anode plate. It permitted De Forest to control the number of electrons moving from the filament to the plate.

De Forest's "Venetian Blind"

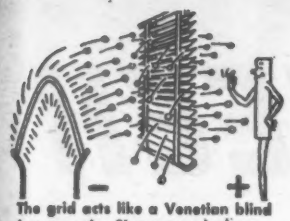
By applying a negative charge to the grid, the negative electrons pouring from the cathode are repelled or forced to turn back (remember that like electrical charges repel, unlike attract). By varying the power of the charge on the grid the number of electrons swarming through the grid to the plate can be controlled. The grid acts like a Venetian blind. With no negative charge, the slats are wide open and lots of electrons can go through. If the blind is gradually closed, fewer and fewer electrons can pass through.

A very small amount of electricity applied to the grid will produce a big change in the current of electrons flowing to the plate. This is how the amplifier tube on your radio set works. The tiny amount of radio energy (from the broadcasting station) is caught by the radio aerial and carried to the grid, where it controls the much greater currency needed to operate your radio loud speaker.

One of the most important and interesting of the electronic tubes is the phototube or "electric eye." It doesn't have a hot filament to produce electrons. Instead, electrons are chased out of the metal filament by shining a light on it. The filament is coated with caesium or another metal which will emit electrons when light falls on the metal surface. When light shines on the tube current flows; when something casts a shadow on the tube, the current stops instantly. It is this tube which turns on a fountain as you bend to drink. Your head interrupts the current flow, a switch is released, and the water is turned on. It is this tube which opens doors as you approach.

Electronic Workmen

In the X-ray tube, the electrons are attracted to the metal plate by a very high voltage, sometimes millions of volts. The electrons hit the plate with



The grid acts like a Venetian blind between the filament and plate.

When the blind is open, lots of electrons can pass.

When the blind is closed very few electrons can pass.

High-speed electrons, striking metal atoms, make those atoms give off penetrating X rays.

Drawings from "A Primer of Electronics," courtesy General Electric

How the scientists' discovery of the electron tube has guided our fighting men on the sea and in the air

terrific force – so hard they almost shatter the metal atoms. When these battered atoms go back to normal they give off radiations we call X-rays. These radiations are so penetrating that they can pass right through the human body and even through several inches of hard steel. X-rays find flaws in casts or weldings while they are merely flaws and have not become the cause of a tragic failure that could cost the lives of men.

All electronic tubes are not vacuum tubes. Some contain small amounts of special gases. The purpose of putting gas into the tube is to get more electric power through the tube. Here's how it is done. The gas is composed of atoms, each having electrons in its composition. When electrons are speeding from the tube's filament to the plate they strike the gas atoms and knock out some of their electrons. The new electrons join the original group flying through the tube to the plate and thus greatly increase the flow of electric current. These tubes, called *thyrotrons* or *ignitrons* are used to supply the vast amounts of power needed for the production of aluminum and magesium in our warplanes and other weapons.

We have described some of the electronic tubes which are "putting the electron to work." Now, let's take up the job being done on war fronts by the busy electron. The amazing accuracy of our gunfire during the North African invasion and the Solomons campaign was made possible by an electronic device called Radar (Radio Detecting and Ranging).

Radar at War

Radar uses a principle which is as familiar to us as an echo. High speed radio waves, called U.H.F. for "ultra-high frequencies," travel in a straight line and can be reflected back from a metal object. Therefore, if they hit a ship, plane, or submarine, they will bounce back in a straight line toward the transmitter which shot them out into space. If there is a receiver near the transmitter these radio waves can be picked up when they bounce back. And by timing the return in millionths of a second, the receiver can tell just how long it took the radio waves to go out, strike the object, and bounce back. These calculations show just how far away the object is.

Radar is not so "new" a discovery as you might think. Twenty-one years ago Dr. A. Hoyt Taylor and Leo C. Young discovered that high-frequency waves would bounce back from metal objects, as an echo bounces back from a wall or a mountainside. Meanwhile, Sir Robert Watson-Watt was developing Britain's version of Radar. With the first detection devices it was possible only to determine that there was a metal object somewhere within range of the radio waves. Today, a Radar unit, trained on an enemy field, can tell the operator the instant planes take off from that field, how far away they are, how many there are, at what altitude they are flying, and at what speed. Thus it is possible for the Radar operator to plot the course of the enemy planes and determine to the split second when they will reach a given point. And the home defense planes can be ready and waiting for the enemy planes when they reach that point.

When droves of German *Stukas* came over England during the "Battle of Britain," Radar teamed up with RAF *Spitfires* and *Hurricanes* to save the day. The Radar "eye" in the nose of RAF night-fighter planes informed the pilot when a Nazi was within range and permitted the defending planes to hunt down the enemy even in the blackest night.

Radar gets much of the credit for saving Britain. It might have saved many ships and lives at Pearl Harbor. The U. S. Signal Corps Radar unit was not sleeping on the morning of December 7, 1941. Private Lockhard (now Lieutenant Lockhard) was getting in some extra practice on the Radar when he spotted a large flight of planes more than half an hour's flying time from Pearl Harbor. He reported this information to his superior. But the officer knew (as the Japs probably also knew) that a large number of American planes were due, so he suspected nothing. The rest of the story is well known.

The lessening of the submarine menace in recent months can very largely be credited to the increased use of Radar detecting devices. Time was when a U-boat raider could lie safely on the surface at night and recharge its batteries. Now the Radar operator can spot the surfaced U-boat even though the night or a blanket of fog hides him, and direct a bombing plane straight to the target.

Today many peacetime industries are not operating. Not so the radio (and electronics) industry. Radios for civilian use are not being built. There are no new designs in cabinets coming out now. But that is the only type of radio equipment which is not being built. The "engine" of the radio – the chassis that is housed in the cabinet – and all the parts which go to make up the "insides" are being built in quantities undreamed of before the war.

Wartime Radio Devices

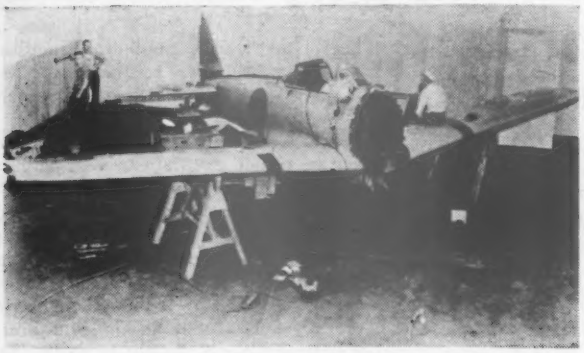
The nerve center of fighting equipment today is the radio. Every plane that rolls off the assembly line, every tank, every jeep, every battleship, cruiser, submarine and PT boat – each needs its radio equipment. The foot soldier has his "walkie-talkie" and the paratrooper his "jumpie-talkie."

Even the rubber life rafts of airplanes are now being equipped with radios. Engineers use radio devices to detect mines so that fields can be cleared of these death-dealing machines before our tanks and men advance. There is a portable radio station which can be buried on an enemy-held shore and left unattended. For weeks it will faithfully transmit weather reports to help our forces plan a surprise landing.

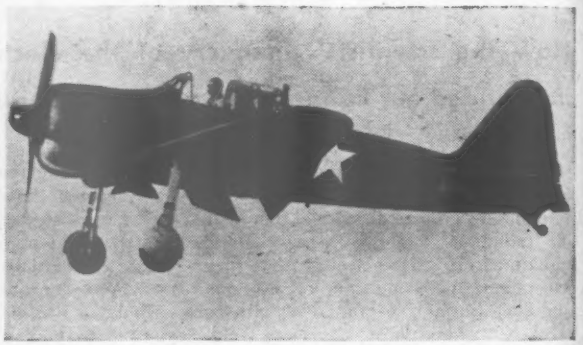
Radio today is not only the nerve center of our fighting forces, it is the lifeline of safety. Many of the most brilliant electronic developments are designed to save the lives of our men. Blind-landing instruments have guided countless flyers to safety in the blackest night. Just as a child slides down a board, a pilot can glide down an invisible incline, made by a radio beam, and set his plane down on a field as smoothly as he could in broad daylight.

AIR WEEK

VOLUME 2 THE AVIATION FACT DIGEST FOR AMERICAN YOUTH NO. 5



JAP ZERO FIGHTER, THE MITSUBISHI S-00, SHOT DOWN IN SOLOMONS, IS REPAIRED HERE.



International News photos

ARMY PILOT TRIES OUT THE REBUILT ZERO. U. S. STAR HAS REPLACED JAP'S RED DISC.

Japs Have a New Zero

IT'S A "KILLER" BUT THIN-SKINNED

The "Zeke," which is U. S. Army code for the Jap Zero, has been smeared all over the Pacific combat area by our fighters and deadly ack-ack. While the Mitsubishi Navy S-00 (Zero) may have been good enough for a sneak attack on Pearl Harbor, it cannot stand up against our Hellcats and Mustangs.

The Japs have developed a new model of the Zero, which U. S. Army flyers code-call the "Hamp." We know what this new Zero can do in the air because we have built one! Yes, the Army has reconstructed a Jap Zero, 1944 model, from parts of five of these fast fighters shot down in the Pacific.

Here's the Lowdown

Here is the lowdown, as reported by our War Department. The new Zero is a "killer," no mistake about it, but flimsy in construction. The report said: "In flight, the wing surfacing wrinkles like tissue." The plane is all-metal, but the metal skin covering is much too thin. So thin, in fact, "it frightens most pilots when they fly the ship for the first time."

The only outstanding development in the Hamp is that the cockpit is part of the wing, both fused into the same structure. The fuselage tail section and engine mounts fasten onto it.

The cockpit, by the way, looks as if it had been designed for Barnum and Bailey's midgets. The Japs are that small. Everything in the cockpit is within easy reach. The canopy over it has no emergency release, and the Jap "buzz boy" has to operate it by hand if he wants to bail out.

Packs a Punch

Why is the plane a killer? First, because it has low wing loading, which means plenty if you want fast maneuverability.

It carries four tanks (not leakproof) and has a long range.

Although lightly armored, the new Zero can "dish it out" even if it can't "take it." It packs two cannon mounted in each wing, and two machine guns which fire through the props.

That much firepower makes the new Zero a dangerous opponent in an aerial combat.

The power-plant of the new Zero is supplied by a Nakajimia Sake radial, 14-cylinder engine. It is copied from a Pratt & Whitney engine.

The five planes we salvaged to reconstruct the new Zero, were all shot down in air combat over the Solomons.

Our pilots, as well as our War Department, have lost no time doping out what is wrong with Japan's best fighter.

PLANE SPEAKING

By Norman V. Carlisle

Recently the Training Command gave us some figures to make us marvel at the size and scope of our Army Air Forces training system.

From Jan. 1, 1939, to Nov. 30, 1943, the Army Air Forces graduated 444 women pilots, 2,348 liaison pilots, 3,491 glider pilots, and 94,516 bomber and fighter pilots. That means that by the end of '43, the AAF had turned out 100,779 pilots!

Not included in that astounding figure are the 20,086 bombardiers, 18,905 navigators, 107,218 gunners, and 555,891 air and ground crew members.

The world's greatest air force, ours, now has more than 2,300,000 officers and enlisted men, and the Training Command is bigger than the world's largest business corporation.

• • •

Tests have been going on at Wright Field, Dayton, O., to find new and better ways of braking landing planes. Reversing the propeller pitch has proved as good as any wheel brake, and for fast-landing planes on short landing fields, far better. Reverse pitch braking has also been found to be much more effective than any dive flap when it comes to slowing up an airplane in flight. It is another old idea revived; propeller braking was used back in 1921 on a Curtis Jenny plane.

If the railroad companies keep up their predictions of glorious things to come in the way of railroad travel, maybe we won't all take to the air, after all. George Kelly, the president of the Pullman Co., promises us low-cost berths at rates a lot lower than present ones and private rooms with "all the latest conveniences," for little more than what you now pay for a lower berth. It will be a nice race, the one between the railroads and the airlines!

• • •

These speed records are made so fast we can hardly keep up with them. Here's a story of a pilot who held the transatlantic speed record for two minutes.

Capt. G. B. Lothian, of Trans-Canada Air Lines, flew from Montreal to Great Britain in 11 hours and 16 minutes, a record. But it didn't last long, for two minutes later a ship piloted by Capt. M. B. Barclay came down for a landing. Since Barclay had left Montreal *four minutes later* than Lothian, he had broken Lothian's record. Present transatlantic speed record: 11 hours, 14 minutes.

• • •

Frank H. Kelley, test pilot who has flown the jet plane, tells us what it feels like. He says it's "the smoothest ride I've ever had in any plane." Other pilots who have flown the plane have all commented about the feeling of security they had while in the air.

FROM "WILSON"

Tennis Ball Headquarters

Conforms to all U. S. L. T. A. specifications

Performs like the best pre-war balls

New CHAMPIONSHIP TENNIS BALL OF SYNTHETIC RUBBER

● We bring you the best tennis news since the Japs cut off our rubber supply. This new Wilson "Championship" is made with the new-type of *Synthetic Rubber—man-made rubber*—a product of never-failing American ingenuity.

And this new Synthetic Rubber makes *some* ball. We've put it through the toughest laboratory tests. It has also been put through the "star" test by such great tennis stars as Budge, Bobby Riggs, Alice Marble, Mary Hardwick and others. And results show that its performance equals the best pre-war natural rubber balls. Meets all U. S. L. T. A. requirements.

Try this new Wilson Championship Ball of the new-type SYNTHETIC RUBBER, at your first opportunity. See how you rate it. Dealers are now being supplied. Wilson Sporting Goods Co., Chicago, New York and other leading cities.

These Great Players Were Amazed

When Don Budge, Bobby Riggs, Alice Marble, Mary Hardwick and other expert players started to smash the NEW Wilson SYNTHETIC RUBBER Tennis Ball around they were very much surprised. Not one of them expected the new-type *Synthetic Rubber* to measure up to the pre-war balls. But it DOES. And what was proved on the courts was confirmed most emphatically in laboratory "bounce" tests. This new Wilson SYNTHETIC RUBBER Ball has what it takes to make a real "championship" tennis ball. Try it and see.

Players mentioned are retained on Wilson's Advisory Staff.

TUNE IN:
ARCH WARD'S SPORTS PREVIEW
EVERY WEDNESDAY NIGHT
Over Mutual Network
See local newspaper for time and station
SPONSORED BY WILSON

Wilson
TENNIS EQUIPMENT

IT'S WILSON TODAY IN SPORTS EQUIPMENT

Miracles of War Surgery

"TIRED, cold and suffering the first twinges of trench foot, our men bent under the heavy assault boats they carried through the minefield. The infantry crawled across ice-coated foot bridges with no rails, gripping the frozen edges with bleeding fingers and stumbling up the farther slopes in a curtain of artillery 'screaming meemie' fire. There wasn't any cover – just smooth, treeless ploughed fields. By midmorning the sun had burned off the fog, exposing our men to lines of hard-bitten Germans who shouted 'Give Up! Give Up!' The only reply to them was an occasional murmur of 'Medico!'

"As the day wore on, two men, an American captain and a private, carrying a Red Cross banner tied to two sticks, marched through battered no-man's land into German territory amid a deathly silence. They were there in response to a German request for a battle lull to evacuate casualties, and after terms were agreed upon, both sides withheld their fire while seventy-five American medical officers and a smaller number of Germans removed the dead and wounded.

"The Americans brought back twenty-five bodies and four wounded men, one of whom was a medical officer. When he was lifted into a litter, given sulfa drugs to stop infection and morphine to stop pain, the wounded medical man grinned feebly and said 'Look, I've got maid service – you can't beat this battlefield.' "

Such is the story, written by a *New York Times* correspondent, of the medical corps in action during the battle of the Rapido River, Italy. It brings into the spotlight the "medicos' " dramatic fight against infection and pain.

Our skin may look thin, but every minute of the day it is a shield against billions of invaders. Every time we cut ourselves, hordes of bacteria, both good and bad, rush into the cut. In a small wound, blood poisoning from infectious bacteria generally does not set in, because the antibodies, opsonins and white blood corpuscles of our blood – the combatters of bacteria – have not too large a battlefield to cover. But in a gaping, torn shrapnel wound, the blood's fighters are outnumbered by enemy bacteria. If the wound also is filled with bits of dirt, masonry and splinters, *gas gangrene* bacteria from the dirt work their way through the blood's defenses and storm the circulatory system. If the wound is the deep type caused by a bullet, oxygen-hating *tetanus* bacilli are carried far into the body, where they thrive because air cannot get at them.

Gas Gangrene

Army doctors dread the time when, operating on a wound, they suddenly smell a sharp, foul odor – gas gangrene. Probably nothing on the battlefield is more ghastly than this fatal blood poisoning: a wounded limb becomes swollen, tender and brownish-yellow, the muscles are greenish and full of gas bubbles and pop out of their tissue sheaths like tires from casings. The worst thing about gas gangrene is that it is caused by a number of different organisms, each of which has to be killed by different means.

In the last war a soldier got gangrene if his wound was not cleaned within six hours – and gangrene set in often in a "cleaned" wound. A few amazing cases lived through bad wounds without getting gangrene because brown fly maggots had hatched in their wounds and had fed on the invading bacteria. A sterile solution of ground fly maggots then was tried on wounds, but killed only a few of the gas gangrene organisms.

More About Penicillin

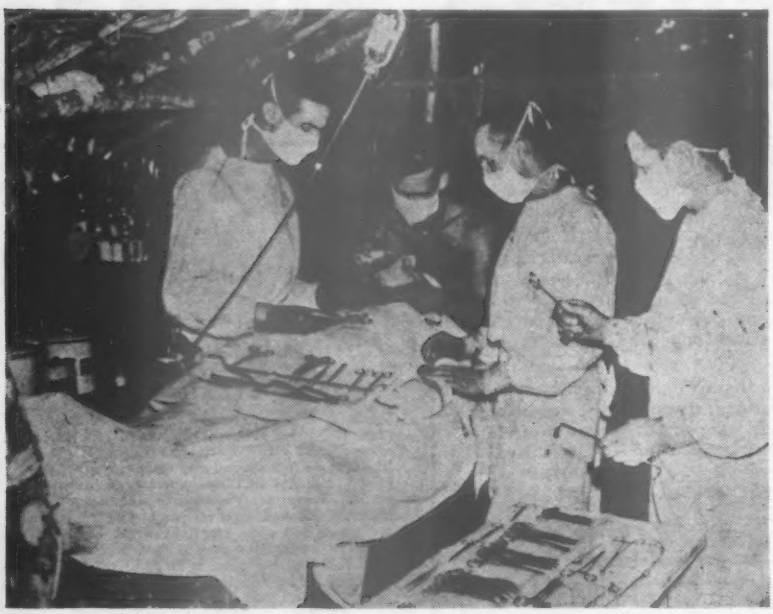
In this war a soldier can stave off gangrene for about four days simply by shaking sulfa powder on his wound. (See article, "Penicillin – Newest Disease-Fighter," Sept. 27, 1943 issue.) With penicillin he can almost forget about the grim infection. Since there is as yet not enough penicillin for the armed forces, surgeons want to be sure a soldier has gas gangrene bacilli in his wound before they give him some of the precious mold drug. Two London doctors, McLean and Rogers, have discovered that the enzymes (digestive juices) of the gas gangrene organisms can be spotted by chemical means.

The latest use of penicillin is the growing of the mold directly on gauze dressings which have been saturated with a solution of yeast, sugar, starch and glycerin. Such a dressing works for 12 days – after which time the mold refuses to fork over any more penicillin. As an outgrowth of penicillin's discovery, scientists plan to "domesticate" certain newly-found "antagonist" soil bacteria that secrete germ-destroying chemicals. Scientists will "raise" antagonists and "milk" them of their chemicals as farmers raise and milk cows!

Tetanus

Hippocrates described the symptoms of *tetanus* as "Jaws pressed tight, teeth locked, stiff neck, body drawn backward in a taut arc." Today's soldiers need not fear these horrible reactions,

(*Concluded on page* 21)



Press Association

Medical corpsmen perform an operation on a table made of logs in a thatched hut which serves as a hospital in the New Guinea jungle.

stand by

Radio News and Notes

By Gretta Baker

SILVER GETS AROUND

The famous call of the Lone Ranger has become the battle cry of American fighters all over the world. Boys who grew up with this popular radio program now in its twelfth year have adopted "Hi-yo Silver!" as a password.

In the battle of Tunis, for example, the loss of telephone equipment compelled an American general to use messengers to notify his division of plans for attack. Roaring along the road in jeeps, the men sang out "Hi-yo Silver!" as they approached an outpost, and in reply came the sentinel's "Away!"

In another battle American paratroopers descended on an enemy-held town. As each man touched the ground and rushed to join his comrades, he sounded the familiar cry "Hi-yo Silver! Away!"

The Lone Ranger himself is a veteran of World War I. Brace Beemer, who plays the part on the air, enlisted in the famous Rainbow Division at the age of 14. (He looked much older.) Beemer distinguished himself in action and won the Purple Heart and the Victory medal with battle bars. When the young veteran returned to high school after his discharge, the teachers were astounded. Then the truth about his age came out. This veteran of the war was only sixteen!

The *Lone Ranger* is heard Monday, Wednesday, and Friday at 7:30 p.m. on the Blue Network.

FAMILY AFFAIRS

The granddaddy of all "family" programs is without doubt *One Man's Family* (NBC-Red, Sunday, 8:30 p.m.). For over ten years it has been a listeners' favorite. Characters who started as children are grown up now, and a new generation is on the scene. Carlton E. Morse, the script writer, deserves much of the credit for making the story so true to life.

A "younger" family is the Marshalls in *Those We Love* (NBC-Red, Sunday, 2 p.m.). But their story is just as believable and a bit more exciting. Francis X. Bushman, matinee idol of two decades ago, plays the father. *Those We Love* is convincing proof that radio drama can be natural, sincere, and at times inspiring.

QUESTION BOX

Q. When we hear a telephone conversation on the radio, is a real telephone used? *Joan Wright, Los Angeles, Cal*

A. A real telephone is used to give the sound of the bell and the click of the receiver. But the sound of the voice at the other end of the wire is produced by talking into a "filter" mike. You can get the same effect by talking into a glass tumbler the way radio actors did before the days of sound effects.

Q. What is Jack Benny's real name and why didn't you mention it in the interview? (January 24, 1944) *Joe Siddons, Houston, Texas*

A. Many performers change their names when they go into theatrical work. Jack Benny has achieved fame under his stage name, so naturally he prefers to use it. His family name is Kubelsky.

(If you have any questions about radio, send them to Gretta Baker, care of *Scholastic* Publications, 220 East 42d Street, New York 17, N. Y.)

(All times given are Eastern War Time.)

BACK THE ATTACK!
BUY WAR STAMPS!

Have a "Coke" = Kia Ora
(GOOD LUCK)

...or sealing friendships in New Zealand

Kia ora, says the New Zealander to wish you well. *Have a "Coke"* is the way the Yank says it, and in three words he's made a friend. It says *Welcome, neighbor* from Auckland to Albuquerque, from New Zealand to New Mexico. 'Round the globe, Coca-Cola stands for *the pause that refreshes,*—has become the high-sign between friendly-minded people. So, of course, Coca-Cola belongs in your icebox at home.

"Coke" = Coca-Cola
It's natural for popular names to acquire friendly abbreviations. That's why you hear Coca-Cola called "Coke".

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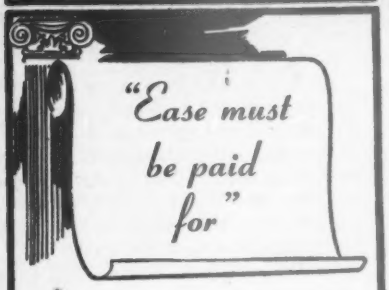
Socrates Said:



Educators are among the first to recognize the desirability of an independent and tranquil old age, when retirement comes.

But they also realize that such advantages must be paid for, just as Socrates insisted.

One of the most safe and practical plans is an Income Endowment policy.

The PRUDENTIAL
INSURANCE COMPANY OF AMERICA
A mutual life insurance company
HOME OFFICE NEWARK, NEW JERSEY

SPORTS

Short Shots

Whenever old-time baseball fans gather 'round for a fanning bee, someone always "pitches" up a tale about fun-loving Larry McLean, who used to catch for the New York Giants. Once with a man on second, the batter cracked a line single on which the runner tried to score. He made a desperate slide, raising a cloud of dust. McLean was bowled over and the ball knocked out of his hand. The runner, however, missed the plate.

Noticing this, McLean scrambled after the ball, picked it up and turned to make the tag. Alas, the dust was so thick he couldn't distinguish the runner from the umpire. All he could see were four feet. He tagged each foot as fast as he could and exclaimed: "I don't know which of youse is the runner, but one of youse is out!"

Two of the country's greatest basketball aces, Herm Schaefer and Curly Armstrong, have been teammates for 15 years on five different teams! Their partnership began in a Fort Wayne (Indiana) grade school and continued through high school. They went to Indiana University together and played on the 1940 team that won the national college championship. After graduation, they joined the Fort Wayne pro team, played for two years, then signed up with Uncle Sam. At present they are regulars on the super Great Lakes Naval Training Station team.

Nobody ever asks Bob Dille, the 6 ft. 3 in. ace of the Valparaiso (Indiana) University basketball team, what he does in his spare time. He hasn't any! Besides taking a full college course and playing basketball, Bob works 40 hours a week in a war plant.

Here is how he does it: He works on the midnight to 8 a.m. shift, then goes directly to school. He attends classes until noon, and then practices basketball for an hour. The rest of his time he spends in bed.

What's the secret of success in track? We always thought it was breaking the tape ahead of the next fellow. But Jim Herbert, the great middle-distance runner, says it's *sleep*. All great runners have been heavy sleepers, he claims.

Glenn Cunningham used to get 14 hours sleep a night. Gil Dodds is a 10 p.m. sleep hound. And there is Bill Hulse. Bill was invited to be on a radio program last month, but he turned it down when he found it went on at 9:15. His bed-time is 9:00!

Herbert worked nights for years and was a champion runner, too. But two years ago he was supposed to be washed up. This year he gave up his night work, started getting 10 hours sleep a night, and is running faster than ever!

Sports fans who are awed by the mystery of numbers are pointing with fiendish glee at Notre Dame's basketball record. In their first 14 games, the Fighting Irish won games 1, 3, 5, 7, 9, 11, and 13; and lost numbers 2, 4, 6, 8, 10, 12, and 14!

Somewhere in the Pacific or in Europe an Army ambulance named "The Spirit of Lou Gehrig" is carrying our wounded back to safety. The ambulance was bought by students of Commerce High School in New York City as a tribute to the greatest and best-loved athlete in their school's history.

PFC Angelo Bertelli, gridder extraordinary, tells this one on himself at Parris Island, Marines' training base in South Carolina. On the second day after arrival, a drill instructor called him out of ranks.

"Your name?" he asked.
"Angelo Bertelli, sir."
"Ever play football?"
"Yes, sir."
"Where?"
"Notre Dame, sir."
"What position?"
"Quarterback, sir."
"Ever play guard?"
"No, sir."
"Well, you've got a new coach and you're going to play guard. You guard the area while the rest of us go to chow."

— HERMAN MASIN

TWO MORE CHAMPS

in the
LOUISVILLE SLUGGER HALL of FAME

● The personal autographs of batters like Stan Musial and Rudy York are found only on Genuine Louisville Sluggers because — like the Champs before them — they won their crowns and play with no other. Musial was the outstanding hitter for 1943 and York the champion home run clouter.
Ask your Dealer or send 5c to Dept. S-32 for this new book. Hillerich & Bradsby Co., Louisville 2, Kentucky.

Louisville
SLUGGER BATS
FOR BASEBALL & SOFTBALL

Casualty

(Concluded)

for doctors know how to fight tetanus. Tetanus, or fatal "lockjaw," is not an infection so much as it is an intoxication with deadly poisons exuded by tetanus bacilli. The old treatment consisted of injecting tetanus toxin (solution containing tetanus organisms) into a horse and then drawing off the antitoxin that the horse's blood manufactured to fight the germs.

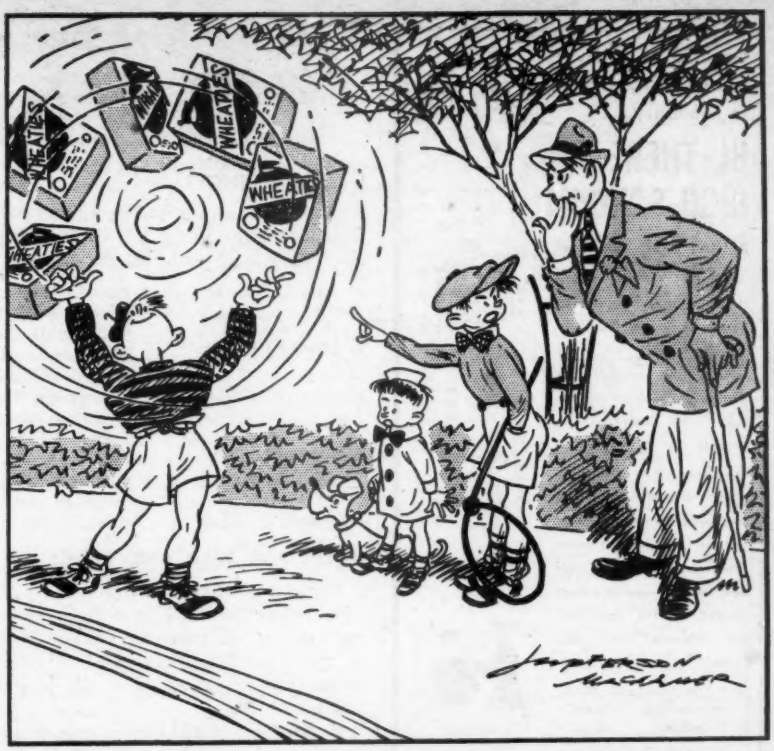
Today tetanus toxin is made nonpoisonous by chemical treatment. It then is called a toxoid, and when injected into a soldier (two shots upon induction, one shot before going on active duty), it does not poison him but stimulates his blood to build up antitoxin. The antitoxin so induced protects him from any tetanus germs that may invade his body if he is wounded. In the 1940 battle of France, not one toxoid-injected British soldier got tetanus, even though most had to wait six days with wounds before reaching a hospital.

Blood poisoning other than gas gangrene and tetanus is thwarted by sulfa drugs (that kill streptococci germs but not staphylococci); penicillin (that kills both), a new drug called proflavin; the secretion of a new harmless soil bacterium, streptothricin; and a new chemical, penatin, from the same mold which yields penicillin.

The latest and least toxic sulfa is sulfamerizine. Because sulfa drugs often cause high and harmful acid concentration in the blood, particularly in the blood vessels of the kidneys, an alkaline like soda is now given to counteract the sulfas' acidity. Sulfas have gone to the aid of the Navy, too. Instead of doing emergency operations on shipboard, Navy doctors now give the patient sulfa drugs, which keep him from further infection until he can be shipped to a shore hospital.

NANCY GENET

(NEXT ARTICLE: Anesthesia)



"It looks easy, but he ate the Wheaties and then filled the empties with bricks!"

Star athletes have a habit of making a difficult feat look easy. And you can bet that physical condition plays a big part in their polished performance.

Many sport headliners start their conditioning program at the breakfast table. They build that first important meal around a man-sized bowl of milk, fruit, and Wheaties, "Breakfast of Champions."

Yes, Wheaties deliver the kind of good whole grain nourishment you'll want to get. And they're loaded with a keen "second helping" flavor you'll really enjoy. Real fun to eat champion style. Have your Wheaties, every morning.

Hey, look! Special offer good only while our limited supplies last. Get handsome mechanical pencil shaped like big league baseball bat—streamlined curved to fit your fingers. Send 10c and one Wheaties box top to General Mills, Inc., Dept. 668, Minneapolis 15, Minn. And send *today*.

A Product of GENERAL MILLS, INC.

"Breakfast of Champions"
WITH MILK AND FRUIT

"Wheaties" and "Breakfast of Champions" are registered trade marks of GENERAL MILLS, INC.

Get Off to a Lively Start in High School in February

HI THERE, HIGH SCHOOL!

By GAY HEAD (author of "BIB AND TUCK")

Here's a bright n' breezy handbook that's "Burnt to a crisp"—and "we ain't woofin'!" In short, for the low-down on high school, read "Hi There, High School!"

Tells you what every new student should know about the easy way to make friends and influence teachers—how to put your best foot forward at school parties, in the assembly, the cafeteria, and classroom.

Get this handbook NOW. It's handy pocket-size, 72 pages, 2 colors, humorous illustrations!

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know your WORLD WEEK

I. WHO'S WHO?

Match the items in the right hand column with those in the left by inserting the proper numbers in the parentheses.

1. John C. Moeller
2. Leonid Govorov
3. John H. Towers
4. Alexandra Kollontay
5. Harold L. Ickes

( ) Russia's Ambassador to Sweden
( ) Danish anti-Nazi spearhead
( ) U. S. Petroleum Coordinator
( ) Victorious defender of Leningrad
( ) Second in command to Admiral Nimitz

II. OIL FOR WAR AND PEACE

Underscore the correct phrase.

1. Before the invasion of Sicily, tankers carrying oil from the Middle East to the United Nations used a route which passed: (a) Istanbul; (b) Malta; (c) Capetown.

2. The largest and most accessible oil supply for United Nations forces in the Pacific will be refineries: (a) on the Persian Gulf; (b) in Venezuela; (c) in Alexandria.

3. Of the total known world oil resources Russia, Great Britain and the United States together control about: (a) 95%; (b) 75%; (c) 50%.

4. If the United States exports no oil and uses some Caribbean oil at home, experts believe that our present resources may last for a maximum of: (a) 50 years; (b) 30 years; (c) 15 years.

5. Gasoline can be made by a process of treating coal with: (a) hydrogen; (b) oxygen; (c) nitrogen.

III. ASSURING WORLD FREEDOM FROM WANT

Mark each true statement T, each false statement F.

1. Before the war, the average annual income per worker in the U. S. was more than ten times as large as that in China.

2. Germany is one of the countries that depend on cereals and potatoes for the major part of their energy supply.

3. One step toward prosperity for the farmer is increased employment of industrial workers.

4. According to the findings of the United Nations Food Conference inefficient food production is the chief cause of undernourishment.

5. "To each according to his need and from each according to his ability to pay" describes the UNRRA plan for distributing food to European nations.

IV. FINLAND — UNHAPPY AXIS ALLY

Fill in spaces with the correct word or words.

1. Soviet bombers have recently made heavy raids on _____, capital of Finland.

2. The Finnish defense line against the Soviets in 1939-40 was called the _____ Line, after the commander-in-chief of the Finnish forces.

3. Finland is the _____ largest (area) country in Europe.

4. One of every _____ families in Finland owns its own land.

5. At the end of the Russo-Finnish War in 1940, Russia acquired _____, Finland's only ice-free port.

6. Germany depends on Finland for two essential war materials, _____ and _____.

7. Finland depends on Germany for 70% of her _____ imports.

• *READING SIGN POSTS*

FINLAND

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"Flashes from Finland," *National Geographic*, February, 1940.

OIL FOR WAR AND PEACE

"Shortage of Oil?" *Fortune*, January, 1944.

Miller, E. W., "Role of Petroleum in the Middle East," *Scientific Monthly*, September, 1943.

Bliven, B., "When Our Oil Gives Out," *New Republic*, October 11, 1943.

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Street _____

City _____ State _____

Laughs

To the Letter

A dandified American Army officer, on duty somewhere in Africa, took his signet ring to an Arab jeweller to have the tarnish removed from the inside. The Arab didn't speak English and the officer didn't speak anything *but* English, and pointing and gesticulating didn't seem to be getting them anywhere. Finally the Arab produced pencil and paper, and the officer, confidently surmising that the jeweller had a friend who would be able to read and translate for him, carefully printed, "REMOVE THE TARNISH," and departed, to hearty nods of comprehension from the Arab. The next day the officer called for the ring. It was still tarnished inside, but it bore, in beautifully graven letters, the words, "REMOVE THE TARNISH."

The New Yorker

Relatively Speaking

Orson Welles is famous, among other things, for his whiplash tongue which often cracks down on radio script writers, directors, and fellow actors. At a recent rehearsal Orson showed his disdain for the lines written for him by racing through one speech after another, so that the words were hardly intelligible.

"Please pause after this line," the harried writer-director told him, "because it's sure to bring a lot of laughs."

"Why?" asked Orson. "Is your mother out front?"

Mislaid

Irate Father: "Will you please tell me why you had to stay after school today?"

Son: "Because I didn't know where the Azores were."

Father: "Well, in the future just remember where you put things."

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NEWS ROUNDUP

WAR ABROAD

Pacific. In the wake of our recent victories in the Marshalls, powerful units of the U. S. Pacific Fleet, with hundreds of carrier-based planes, attacked Japan's foremost naval and air base at Truk in the Caroline Islands. Truk is Nippon's "Pearl Harbor," the heart of the enemy's power in the Pacific. The Japs lost 19 ships, 201 planes at Truk. U. S. landed on Eniwetok atoll in western Marshalls.

Allied arms scored another triumph in the New Britain zone when American and New Zealand troops, under Admiral William F. Halsey, seized the Green Islands, 135 miles east of Jap key base of Rabaul.

Toward Invasion. "God help the Nazis!" General Dwight D. Eisenhower declared after completing an inspection tour of American and British units under his command, in preparation for the invasion.

In the heaviest air attack in history, a thousand RAF four-motored bombers dumped more than 2,800 tons of bombs on Berlin during a thirty minute raid.

The War Department announced the sinking of an Allied transport in European waters with the loss of a thousand American soldiers. Another thousand were saved.

Italy. The ancient Benedictine Abbey atop Mount Cassino crumbled beneath a devastating aerial onslaught by American bombers. For weeks Nazi troops had used the shrine for military purposes.

On the Anzio beachhead below Rome, following the recapture of the town of Aprilia by the Nazis, the full weight of Allied air power was thrown into battle. All subsequent German thrusts have been repulsed.

Russia. With tanks and massed gunfire, General Ivan S. Konev's Ukrainian armies wiped out ten Nazi divisions in the Cherkassy pocket, after a fourteen-day battle. At least 52,000 Germans died at Hitler's order and 11,000 surrendered to the Russians, the heaviest single German loss since Stalingrad. Meanwhile, the Red armies in the north continued their relentless advance on Pskov, driving to within twenty miles of this vital Baltic rail center.

International. To forestall a possible declaration of war by Argentina against the Axis, a group of army officers ejected Foreign Minister Alberto Gilbert and his Under-Secretary from their posts.

WAR AT HOME

Congress. Congress banned the Administration's food price subsidies, but the House failed of a two-thirds vote to repass the bill over President Roosevelt's veto. The President also vetoed the $2,315,000,000 tax bill as inadequate. The Senate passed the UNRRA resolution by a vote of 47 to 14, authorizing an appropriation of $1,350,000,000.

Miscellaneous. The Fourth War Loan of fourteen billion dollars was oversubscribed by an estimated two billions. The War Food Administration ordered a cut of 43 per cent in canned fruits and of 19 per cent in canned vegetables for civilian use during 1944-45. A report by Bernard Baruch on postwar reconversion of industry was released by the White House.

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Explorer in Microchemistry

The Story of Herman Liebhafsky

Explorers usually go a-hunting with tents, guns, cameras, and the like, but Dr. Herman Liebhafsky, a chemist in G.E.'s Research Laboratory, uses his microscope and test tubes as his exploring equipment.

He's an explorer in the Lilliput land of microchemistry. He can weigh a piece of paper, have you write your name on it, put it on

the scales again—and tell you how much your signature weighs! His answer will be in gammas, and a gamma is 1/28,329,000 of an ounce!

Herman Liebhafsky's first exploration was into America, for he came here from Austria-Hungary when he was six. He knew no English when he started in school, in a wooden-frame schoolhouse in the farming country of South Central Texas. But in only three weeks, his teacher had him read a story before a woman's club. He went through it beautifully—but didn't understand a word he read!

In his knee-pants stage, Herman thought he wanted to be a farmer—before a cow picked him up on her horns one day and tossed him over the fence into his mother's arms—also before he just missed kneeling on a coiled rattlesnake while he was picking cotton!

Then, in high school, the unknown territory of science was opened to him, and he went to Texas A. and M. to study chemical engineering. After graduation, in order to explore further into the fundamentals of chemistry, he took post-graduate work at the University of Nebraska. From there he went to the University of California, where he received a Ph.D. and remained for five more years as an instructor in chemistry.

He then joined the staff of the G-E Research Laboratory, worked with a consultant on chemical problems, and devised special microchemical techniques to solve those problems. In many engineering developments, the only clue to vital information is a microscopic particle of matter. Microchemistry allows the scientist to analyze the particle as swiftly and accurately as though it were as large as a house.

Through his skill in exploring these tiny worlds, Herman Liebhafsky is helping solve the problems of giving our war machines the most efficient design, and our soldiers the most powerful weapons. *General Electric Company, Schenectady, N. Y.*

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